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a national advantage; but unless wealth is continuously created we can not make good the huge wastage of resources which the war has entailed, and we shall be faced with bankruptcy. Much more is, however, required of us. In the cleansing fires of war, the gold and the dross have been thrown into sharp contrast. If we are to rebuild our national life on purer and healthier lines, so that it may be worthy of the heroes who have fought and died to save Britain from the greatest peril she has ever encountered, the gold must be cherished and the dross must be discarded. The whole future of the empire will be determined by leadership in all classes alike—leadership inspired by self-less motives and based upon patriotism and knowledge.

In the "Wisdom of Solomon" there are words which democracy must take to heart if it is not to prove a disastrous failure. "Neither will I go with consuming envy; for such a man shall have no fellowship with wisdom. But the multitude of the wise is the welfare of the world."

SYDENHAM

AGRICULTURAL TEXT-BOOKS FOR OUR PUBLIC SCHOOLS

ONE of the results of the activities of the agricultural colleges and the experiment stations is the production of an immense quantity of both general and special literature on agriculture. In this literature we find an increasing number of text-books intended for the use in our public schools. This, in itself, may have been influential in stimulating the modern public demand for agricultural instruction in the public schools of both the country and the towns—a demand which is very sane.

It is a matter of common observation of those who have had the opportunity to observe, that nowhere in the old world do we find that interest in the soil and its products among the non-farming classes, or as great a respect among them for the tilling and the tiller of the soil as in America. In many places of Europe, there yet lingers the prejudice of the city dweller against the peasant,

who once was tied to the soil and owned by the owner of the soil, for whose support it had pleased God to allow him to exist.

In this country, it is a frequent occurrence to find business and professional men of the city, not only to pride themselves on their skill and experience as cultivators of the soil, but to carry that skill and experience into actual operation in their management of rural affairs. Hence, the teaching of agriculture in all of our public schools of both city and country is an increasing demand. The exact scope of this teaching and to what classes, or what maturity of pupils it is to be applied, seems yet to be an unsettled question, judging from the nature of a large part of the many text-books published for this purpose.

Some of these text-books seem by their style of language to cater to the tended minds of the primary grades, but in their scope and the nature of the topics to be intended as guides for the professional farmer in his practical operations. Agriculture, as a subject in our public schools will fail to educate and entertain the minds of the pupils, if heavily burdened with dry recipes for increasing the number of dollars, or lectures upon mere physical operations of running a farm. The highly interesting biological, chemical and physical principles underlying these operations would, however, not fail to stimulate and elevate the young mind, as adding interest to the operations in themselves. The language, too, in which these subjects are taught, should be in a simple, yet good virile English, and not in the blabber of the baby; for no ambitious boy or girl is willing to stoop to a lower level of intelligence, but anxious to reach out for a higher.

In several of these text-books on agriculture, we find some very strange incongruities; for example, matters requiring a well developed intellect and considerable maturity of judgment for their comprehension are discussed in a language suitable to the kindergarden tot. One author, in describing the nitrogen-generating bacteria on the roots of the legumes, regrets that he has to use the big word, *tubercle*; but admonishes his pupils to learn

its meaning and how to pronounce it. Yet, in spite of this supposed immaturity of the minds and the vocal organs of his pupils, this same author manages in his book to treat of all living things of importance on the farm, from the bacterium to the horse, and all the operations, from preparing the soil for the crops to the marketing of their products; nor does he stop at that, but devotes much space to rural sociology.

Another author who feels "that there is a need and a demand for a book that will standardize seventh and eighth grade agriculture" has produced one in which the "arrangements of chapters follow as closely as possible the farmer's seasonal occupations." In his preface, this author says:

Such topics as the origin, history and importance of farm crops and animals are about agriculture, but such topics as how to produce larger yields, use more prolific varieties, the use of high grade and pure bred stock, how to feed well and economically, how to improve the soil, how to combat enemies and how to choose, plan and manage a farm, are topics that deal with making our agriculture productive. This is not primarily a book about agriculture; but on productive agriculture.

If a book dealing with the various natural laws and principles underlying agriculture is a book about agriculture, the author is correct in stating that his book is not about agriculture, nor is it a text-book on agriculture, but a manual giving forth in a dry, and matter of fact way directions for the performance of the numerous operations required in the management of a farm. The cost in labor and money, and the profits direct and indirect are, of course, the principle lessons to be inculcated by such teaching.

More attention to the principles of plant and animal life would have added interest and animation to the subject, and more care in the statements concerning facts in plant life would have avoided some obvious blunders. For example, in the table giving the minimum, optimum and maximum degrees, Fahrenheit of the germinating temperature of the seeds of various farm crops, that for the red clover is given as 88°-99° min., 99°-111°

optim., 111°-122° maxim.—Any girl or boy old enough to have begun the study of primary geography, will know that such a peculiarity would banish the red clover from the temperate zone. This book is not the only text-book on agriculture written for the public schools that is encyclopedic in its scope and character, since a great number have been constructed on the same plan.

One author makes the following confession in the preface to his book:

Agriculture is too complex for all the details to be mastered by one person. The expert in crops or soils does not possess more than a general knowledge of live stock, fruit growing and dairying. In the subject of crops, there are those who have specialized in grains, forage crops or grasses. In animal husbandry, there are the specialists in beef cattle or dairy cattle, specialists in draft horses or light horses, and specialists in sheep and swine. If a man attempts to speak out of his own knowledge on all the phases of agriculture, covered by a school text, the treatment of many of the subjects would be inaccurate and misleading, or else so general as to be of little value. To insure for each branch of the subject an expert, who is responsible for a large part of the material in the field of his specialty, the author has organized this material into a logical, teachable work on agricultural science and practice.

The author of this book has by the help of his experts, whose list of names and specialties covers a solid page of his preface, composed a work that is as impossible to teach from, for one teacher, as it was impossible for the author unaided to write it all from his own knowledge. There is no necessity for commenting on the difficulty that would confront the pupils in attempting to master such a text.

Briefly, it may be said that, in the greater number of these "text-books on agriculture for the public schools," the pupils are expected to cover more agricultural subjects, frequently crowded together in an incoherent way and stripped of all philosophical connective tissue, than any student in the state agricultural colleges, where he has a four year's course with specialists for teachers, supplied with all the equipments for demonstration. As a men-

tal nourishment, such a repast, as offered by many of these books, is both too dry and too bulky for digestion,—nor are many cooks an insurance against “spoiling the broth.”

What is, then, a logical and reasonable scope for the agricultural teaching and the text book in agriculture for our public schools?

The simplest way out of the dilemma would be to return to the idea of “a book about agriculture” and give up the idea of “productive agriculture” for our public schools. In its place, it would be the object of the agricultural teacher to make intelligible to his pupils, in a general way, those biological, chemical and physical principles underlying our agricultural operations. Hence, agricultural botany and zoology, including a history of the practical phases of the evolution of our “animals and plants under domestication.” The practical operations and the history of their evolution should not be lost sight of, but be subordinate to what we might call the scientific aspects, yet diligently drawn upon for the elucidation of these. The subject, thus handled, would not be incomprehensible for one author, or one teacher, or to all the pupils, but be within the scope of the average human mind.

A good text book goes far towards making up for the deficiency of the teacher, and a poor text-book goes equally far in hampering the efficiency of the teacher. Not the least consideration in the value of a text book is its style. A book with a faulty style is like a poorly prepared, or badly seasoned meal, it is taken with a sense of repulsion. There are some of these text books, in which to their small merits are added the demerits of a bad style.

H. NESS

HORTICULTURIST, TEXAS EXPERIMENT STATION,
COLLEGE STATION, TEXAS

FRED SILVER PUTNEY

FRED SILVER PUTNEY, professor of experimental dairy husbandry at the Pennsylvania State College, and well known among dairy professors and investigators throughout the United States, died of pneumonia at his home

in State College, Pennsylvania, on October 5, 1918.

Always interested in live stock problems, in recent years he has devoted his energies to teaching and fundamental research along the lines of animal nutrition. Dairy cattle feeding problems have been his special interest and his work along these lines is well known. He is co-author with Dr. C. W. Larson of the text-book and general reference work, “Dairy Cattle Feeding and Management,” and in conjunction with Dr. N. P. Armsby, of the bulletin, “Computation of Dairy Rations,” in addition to numerous papers on dairy management and nutrition.

Professor Putney was born in Hopkinton, N. H., on November 10, 1881. He was graduated from the Concord High School in 1901 and received the B.S. degree from the New Hampshire State College in 1905. In 1908 the Pennsylvania State College conferred upon him the degree of Master of Science, and he had completed recently the requirements for his doctorate degree at the University of Wisconsin.

Professor Putney first went to the Pennsylvania State College in 1906 where he worked with Dr. H. P. Armsby as an assistant in animal nutrition and general experimental work until 1908. That year he became assistant to Dean F. B. Mumford, of the college of agriculture, University of Missouri, at which institution he continued his studies in nutrition towards a doctorate degree. From Missouri he went to the Rhode Island State College as professor of animal husbandry and head of the department, and he remained at that institution for several years. In 1913 he returned to the Pennsylvania State College as assistant professor of dairy husbandry, and later became professor of experimental dairy husbandry.

For the past years, Professor Putney has been on leave of absence for advanced study in animal nutrition. This time he spent at the University of Wisconsin and had just completed the requirements for his doctorate degree. Professor Putney married Miss Bertha Bond of Urbana, Illinois, September